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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/421,043	10/20/1999	TOSHIO MASUDA	503.34403VP2	3576
20457	7590	05/07/2004	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-9889			ALEJANDRO MULERO, LUZ L	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/421,043	Applicant(s) MASUDA ET AL.	
	Examiner Luz L. Alejandro	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 62-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 62-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 66-69 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification, as originally filed, fails to provide support for the claimed limitation of "...a temperature controller for adjusting the thermally conductive medium so as to control a temperature of a surface of the detachable member..." (claim 66). The examiner has noted that a temperature control means is mentioned in the specification of the instant claimed invention (see, for example, paragraph bridging pages 18-19), however, such temperature control means is related to controlling the temperature of the sample W instead of controlling the temperature of the surface of the detachable member.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 66-69 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 66 recites the limitation of "...a temperature controller for adjusting the thermally conductive medium so as to control a temperature of a surface of the detachable member...". It is noted that in several places of the specification of the instant claimed invention (see, for example, the paragraph bridging pages 15-16), it is stated that a jacket is used for controlling the temperature of the inner surface of the sidewall when a heat exchanging medium is circulated and supplied into the jacket. Is this jacket structure what applicant is trying to claim by a temperature controller? Clarification is requested.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 62-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji et al., JP 4-214873 in view of Shinji, JP 9-275092 and Ishioka, JP3-104222.

Tsuji et al. shows the invention substantially as claimed including a plasma apparatus in which a gas is supplied to a metal chamber and a sample 10 which is placed on a sample holder 11 disposed inside of the chamber is processed by a plasma generated in the chamber, the apparatus comprising: a power source 13 for supplying a high frequency wave to the sample holder; an aluminum member 20 held against the sidewall inside of the chamber and forming an inner surface of the chamber which is contact with the plasma generated in the chamber (see fig. 1); and a thermally conductive medium 21B being circulated inside of the member so as to control the temperature of the member within a predetermined range, wherein the thermally conductive medium is a coolant (see, for example, paragraphs 0032 and fig. 1). With respect to the temperature controller of claim 66, note that the member 20 together with the thermally conductive medium 21B are considered to be the claimed temperature controller.

Tsuji et al. does not expressly disclose that the member 20 is detachable. Shinji discloses a plasma apparatus comprising a member 12 that is detachably attached to the chamber in order to be easily removable, therefore, reducing the cleaning time of the apparatus (see paragraph 0005). Also, Ishioka discloses a plasma apparatus

comprising a removable shield 17 for enabling removing of the shield during maintenance and management of the system (see page 7-first paragraph, and fig. 2). Therefore, in view of these disclosures, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Tsuji et al. as to comprise a detachable member because in such a way maintenance and management of the apparatus is more easily performed, and the cleaning time of the apparatus is reduce.

With respect to the chamber being at least partially constituted by a sidewall which is grounded to earth, Shinji discloses that the plasma chamber is grounded. It is also known in the art that electrical floating is prevented by grounding the chamber. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Tsuji et al. as to ground a sidewall of the chamber in order to prevent the chamber from being electrically floating, which can alter the process conditions, thereby, ensuring repeatability of the wafers being processed.

With respect to: a) the apparatus being a plasma etching apparatus, b) the surface of the member being controlled to a temperature lower than a temperature of the sample, and c) the thermally conductive medium being circulated as to control the temperature of the surface of the member in the claimed range, such limitations are directed to method limitations instead of apparatus limitations, and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand, since a variety of methods can be done with the apparatus. The

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method limitations are viewed as intended uses that do not further limit, and therefore do not patentably distinguish the claimed invention. The apparatus of Tsuji et al. modified by Shinji and Ishioka is capable of being used for an etching process, being used to control the temperature of the member as claimed, and to form a film on the member as claimed.

Response to Arguments

Applicant's arguments filed 2/11/04 have been fully considered but they are not persuasive.

Applicant argues that the instant claimed invention differs from the teachings of Tsuji et al. because "...products formed in the etching chamber during the etching processing of the sample are deposited and maintained on the detachable member", while Tsuji et al. removes the products from the chamber walls during a cleaning processing of the chamber. However, it should be noted that: a) the claims only require that the products are deposited and maintained during wafer processing, b) the products in the apparatus of Tsuji et al. are only removed when the chamber is cleaned, therefore, the products are deposited and maintained for at least the length of the wafer processing, c) the chamber cleaning process is generally performed at a time interval after a few or several wafers have been processed to avoid extensive downtime of the apparatus, and d) a process for cleaning the chamber of the apparatus is not the same as a process for etching the wafer, therefore, while removal of products from the chamber walls of an apparatus will happen during a chamber cleaning process, removal

of products deposited in the chamber wall may not necessarily occur during a process for etching the wafer.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that the apparatus is a plasma etching apparatus, the temperature of the detachable member is controlled during an etching processing of the sample, and products are deposited and maintained on the detachable member during the etching processing of the sample, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the

intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). The apparatus of Tsuji et al. modified by Shinji and Ishioka is capable of being used for an etching process, being used to control the temperature of the member as claimed, and to form a film on the member as claimed.

With respect to applicant argument that claim 66 recites "...a temperature controller...", it should be noted that: a) the specification as originally filed fails to provide support for such claimed feature, as stated in the above 112 first paragraph rejection, and b) the member 20 together with the thermally conductive medium 21B are considered to be the claimed temperature controller.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 571-272-1430. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 571-272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Luz L. Alejandro
Primary Examiner
Art Unit 1763

May 5, 2004